

Claims

[1] A silicon carbide-based catalyst body comprising:

a porous honeycomb structure wherein silicon carbide particles as the aggregate thereof are bonded to one another
5 with pores held among them, and

a catalyst loaded on the surface of the porous honeycomb structure, containing alumina and ceria as main components,

characterized in that the catalyst is loaded on the surface
10 of the porous honeycomb structure via a film comprising a silicon-containing oxide and that the film contains oxygen in an amount of 2 to 10% by mass of the total elements constituting the porous honeycomb structure.

[2] A silicon carbide-based catalyst body according to
15 Claim 1, wherein the film contains alumina and/or zirconia as the element (elements) thereof.

[3] A silicon carbide-based catalyst body according to Claim 1 or 2, characterized in that the film contains, as the crystalline phase thereof, at least one member selected from
20 the group consisting of cristobalite, zircon and mullite.

[4] A silicon carbide-based catalyst body according to any of Claims 1 to 3, characterized in that the silicon carbide particles are bonded by metallic silicon as the binder thereof.

25 [5] A method for preparing a silicon carbide-based catalyst body, characterized by extruding a raw material containing silicon carbide particles to obtain a honeycomb structure, firing the honeycomb structure, then subjecting the fired honeycomb structure to a heat treatment in an oxygen-
30 containing atmosphere to obtain a porous honeycomb structure,

and loading, on the surface of the porous honeycomb structure,
a catalyst containing alumina and ceria as main components.

[6] A method for preparing a silicon carbide-based catalyst
body according to Claim 5, wherein the heat treatment is
5 conducted in an atmosphere containing oxygen and steam.

[7] A method for preparing a silicon carbide-based catalyst
body according to Claim 5 or 6, wherein the heat treatment is
conducted by burner combustion and heating using natural gas
as a fuel.

10 [8] A method for preparing a silicon carbide-based catalyst
body according to any of Claims 5 to 7, wherein the heat
treatment is conducted at a temperature of 800 to 1,400°C.

[9] A method for preparing a silicon carbide-based catalyst
body, characterized by extruding a raw material containing
15 silicon carbide particles to obtain a honeycomb structure,

subjecting the honeycomb structure to binder removal and then to a heat treatment, in an oxygen-containing atmosphere, then firing the resulting honeycomb structure to obtain a porous honeycomb structure, and loading, on the surface of the
5 porous honeycomb structure, a catalyst containing alumina and ceria as main components.

[10] A method for preparing a silicon carbide-based catalyst body according to Claim 9, wherein the heat treatment is conducted at a temperature of 400 to 1,000°C.

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